FIG. 1

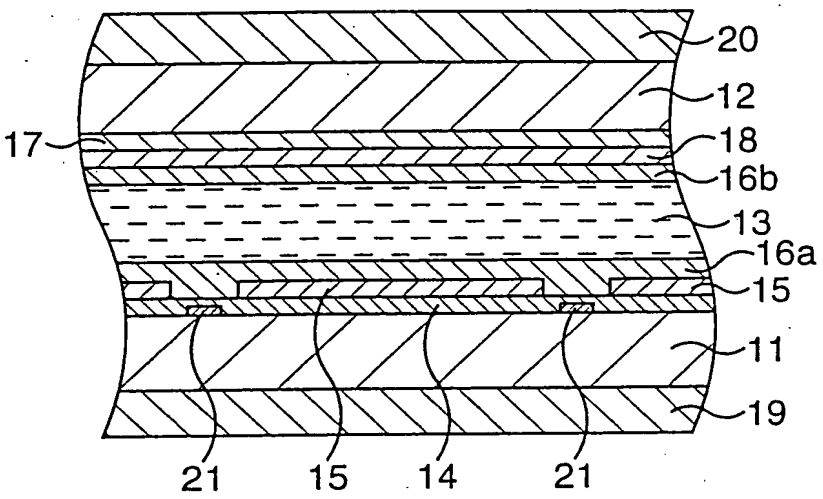


FIG. 2A

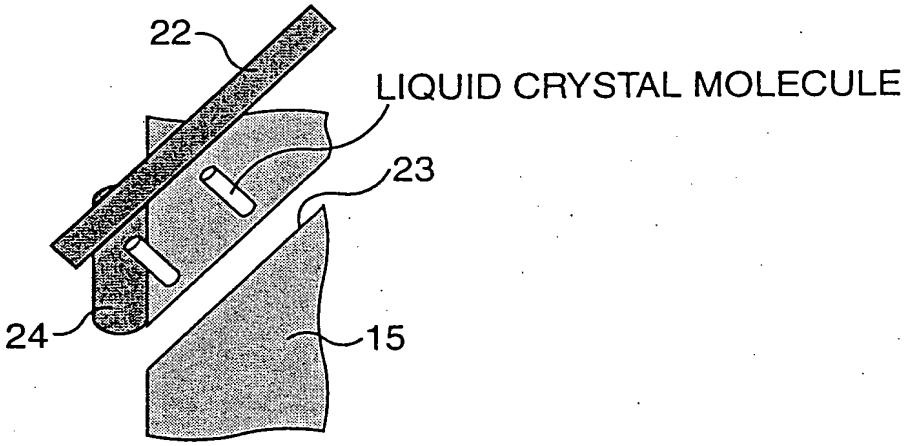


FIG. 2B

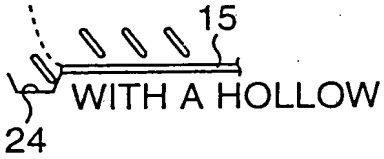


FIG. 2C

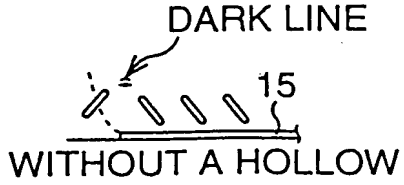
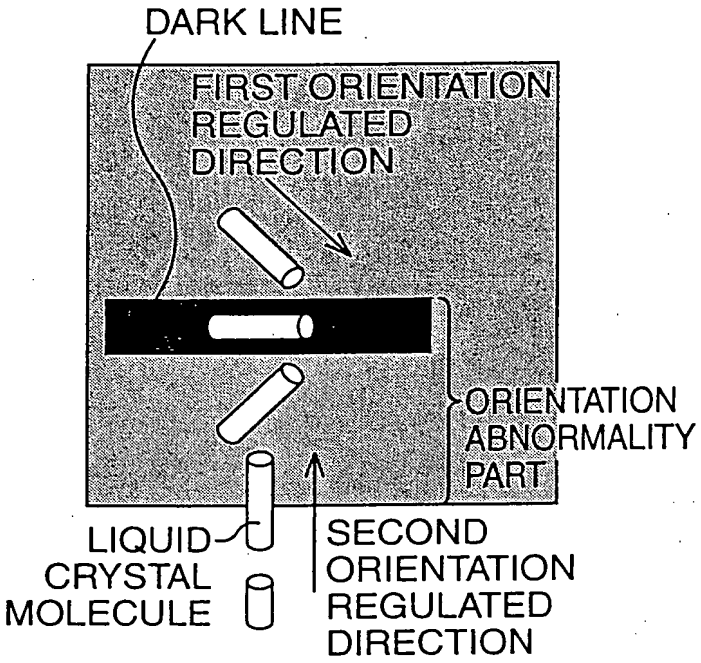
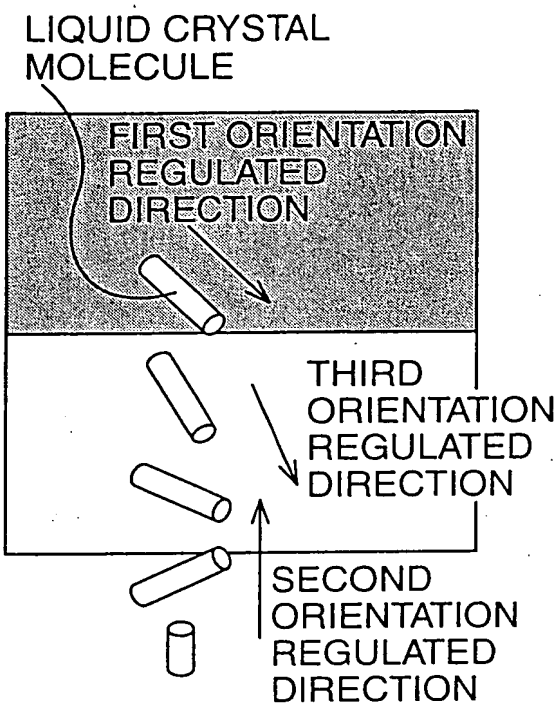


FIG. 3A



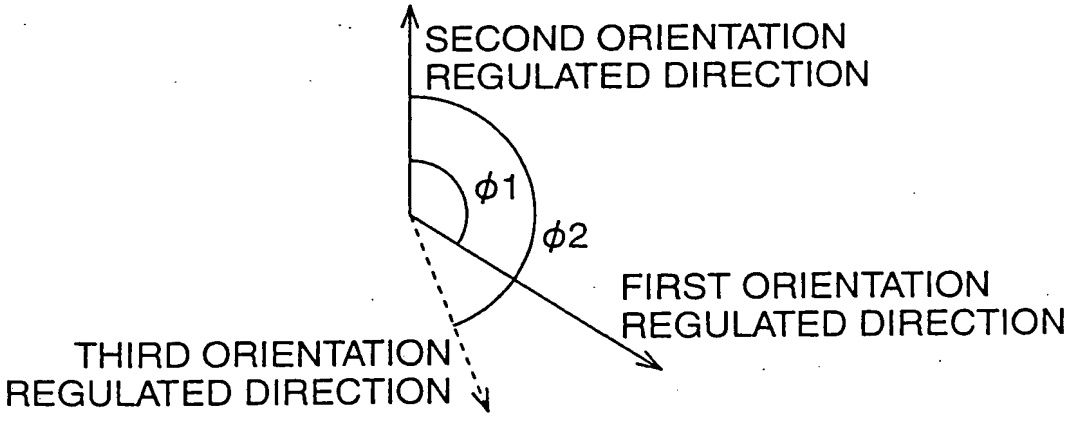
CONVENTIONAL

FIG. 3B



GIVE A THIRD REGULATING FORCE

FIG. 3C



RELATION BETWEEN DIRECTIONS OF ALIGNING FORCE AND ANGLES

FIG. 4

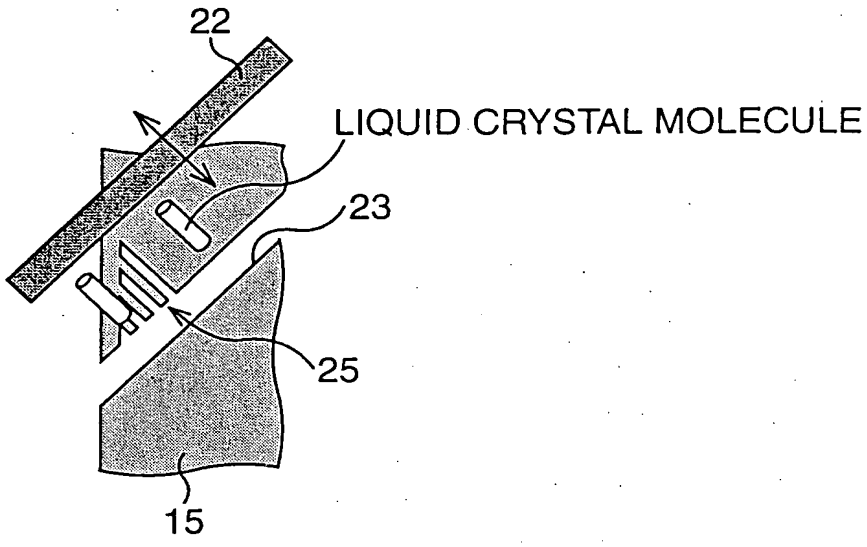


FIG. 5

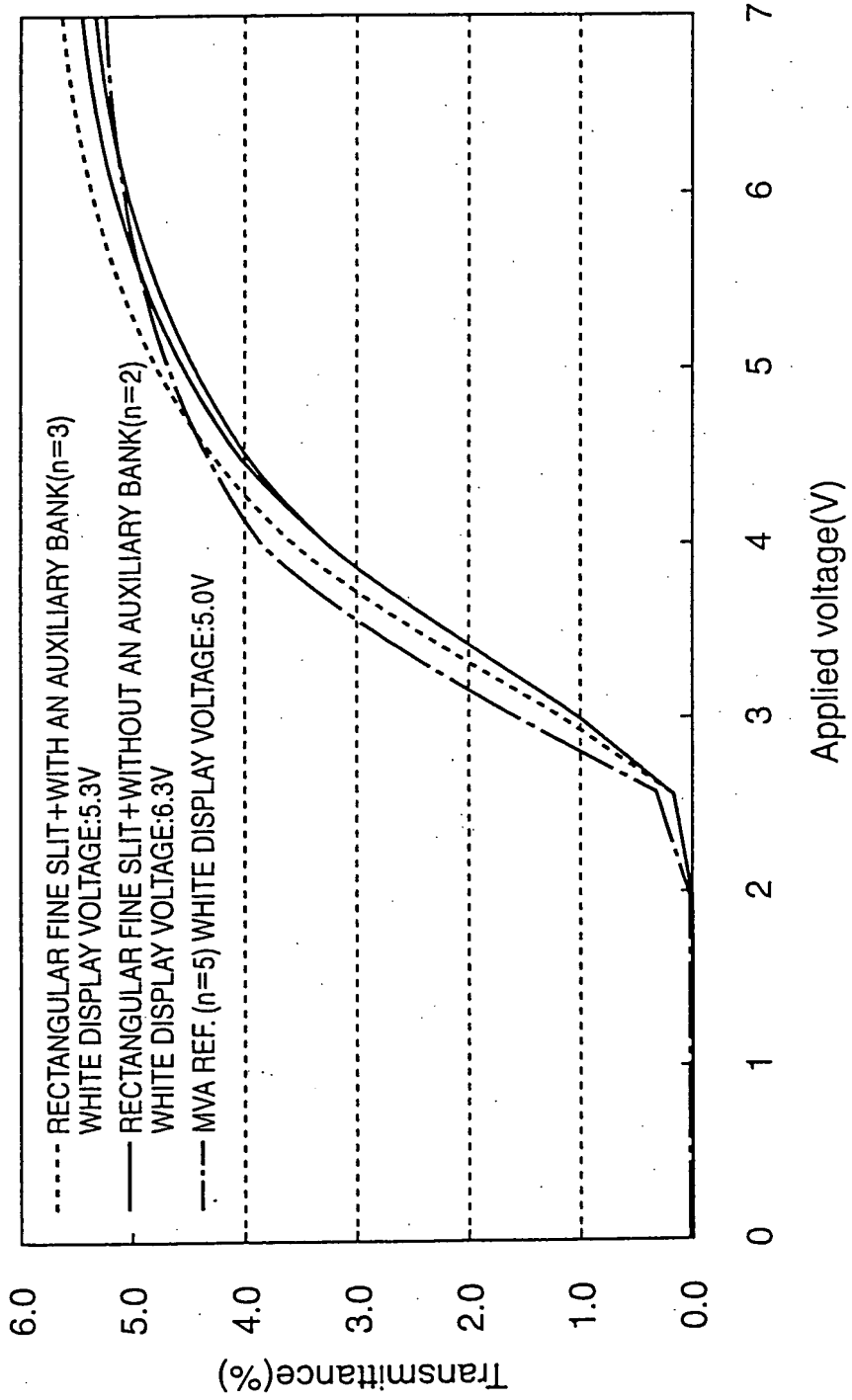
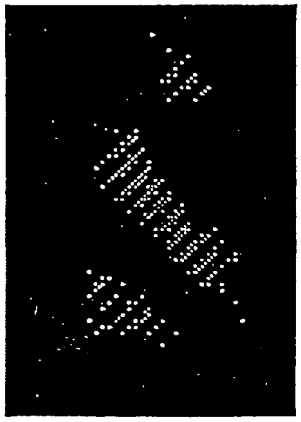
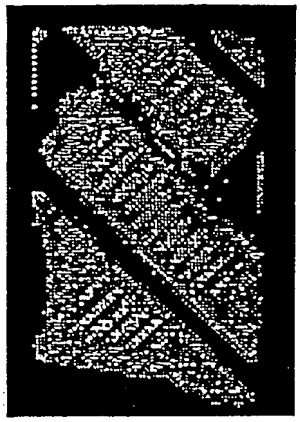

RECTANGULAR FINE SLIT+WITH AN AUXILIARY BANK(n=3)
WHITE DISPLAY VOLTAGE:5.3V
RECTANGULAR FINE SLIT+WITHOUT AN AUXILIARY BANK(n=2)
WHITE DISPLAY VOLTAGE:6.3V
MVA REF. (n=5) WHITE DISPLAY VOLTAGE:5.0V
Transmittance(%)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0
1
2
3
4
5
6
7
Applied voltage(V)

FIG. 6A



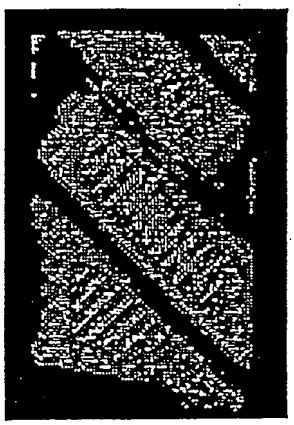
APPLIED VOLTAGE : 3V

FIG. 6B



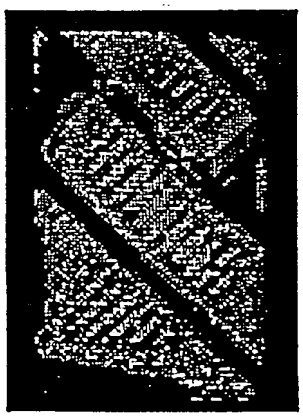
APPLIED VOLTAGE : 4V

FIG. 6C



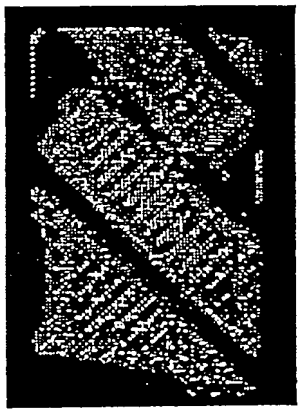
APPLIED VOLTAGE : 5V

FIG. 6D



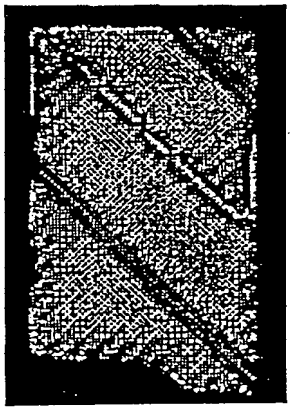
APPLIED VOLTAGE : 6V

FIG. 6E



APPLIED VOLTAGE : 7V

FIG. 6F



APPLIED VOLTAGE : 8V

FIG. 7

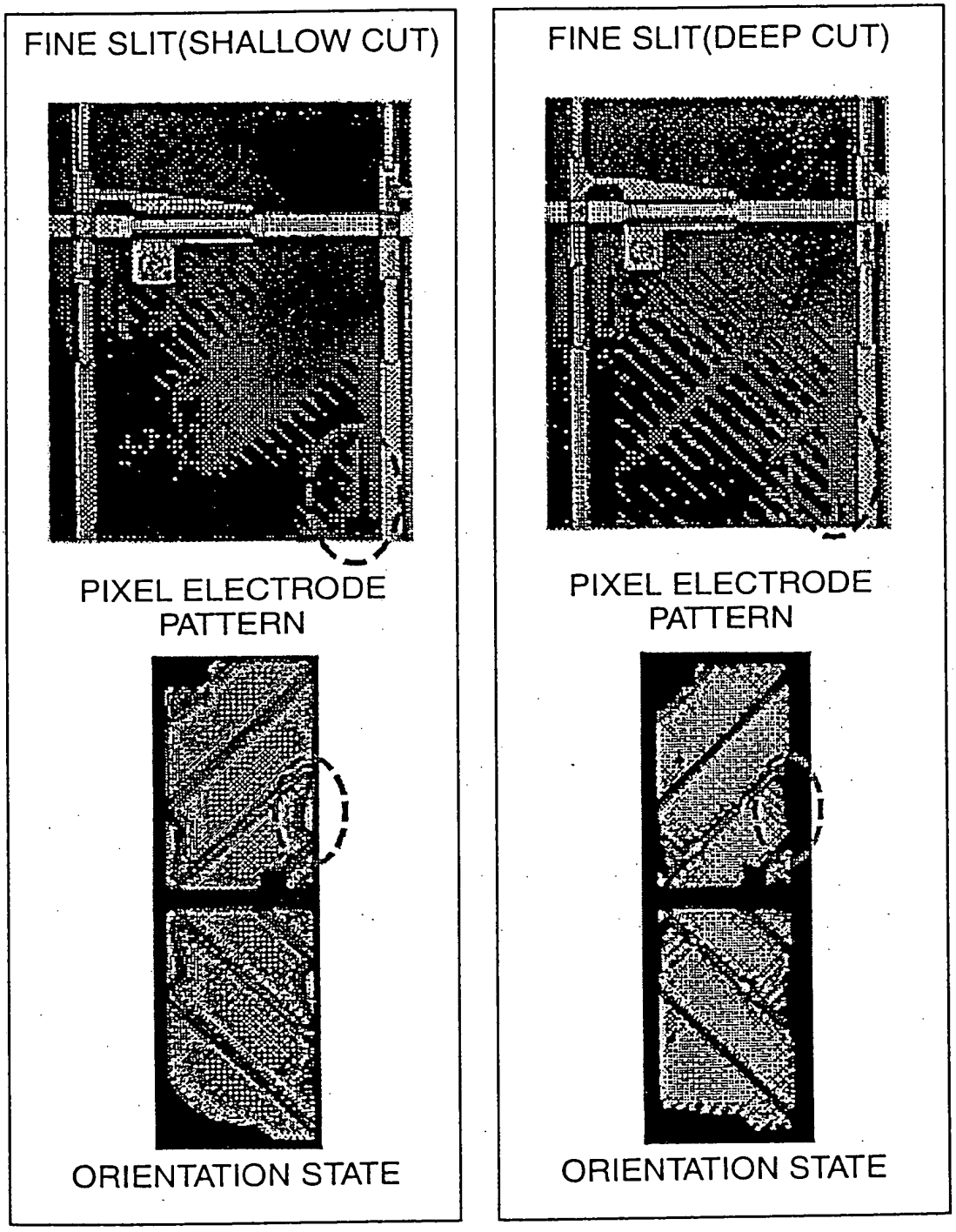

FINE SLIT(SHALLOW CUT)
PIXEL ELECTRODE PATTERN
ORIENTATION STATE
FINE SLIT(DEEP CUT)
PIXEL ELECTRODE PATTERN
ORIENTATION STATE

FIG. 8

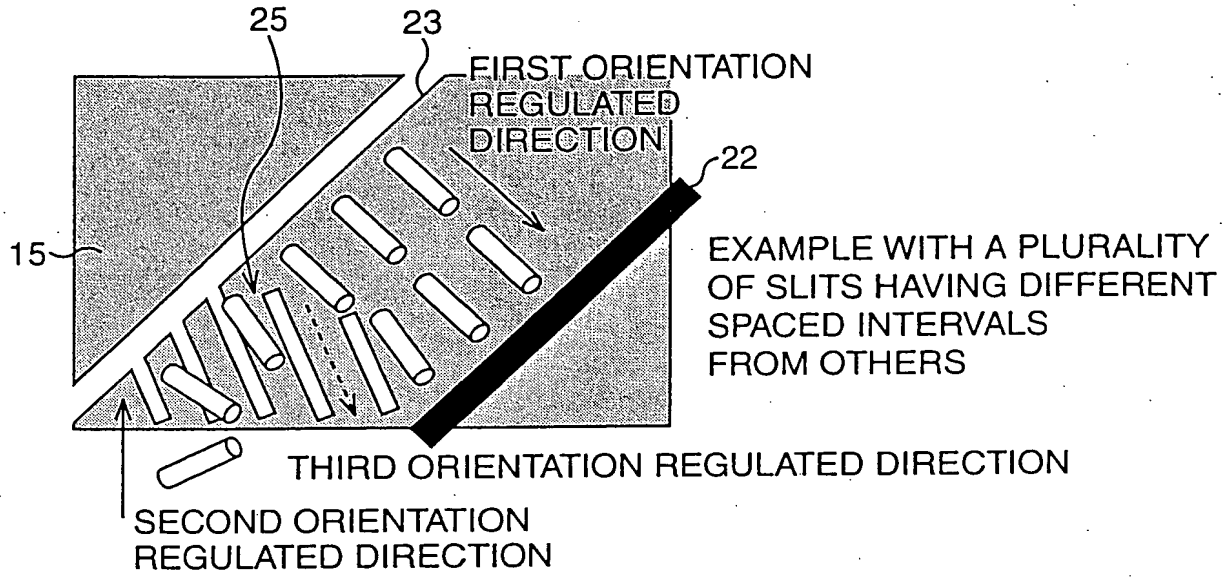

25
23
FIRST ORIENTATION REGULATED DIRECTION
22
15
EXAMPLE WITH A PLURALITY OF SLITS HAVING DIFFERENT SPACED INTERVALS FROM OTHERS
THIRD ORIENTATION REGULATED DIRECTION
SECOND ORIENTATION REGULATED DIRECTION

FIG. 9

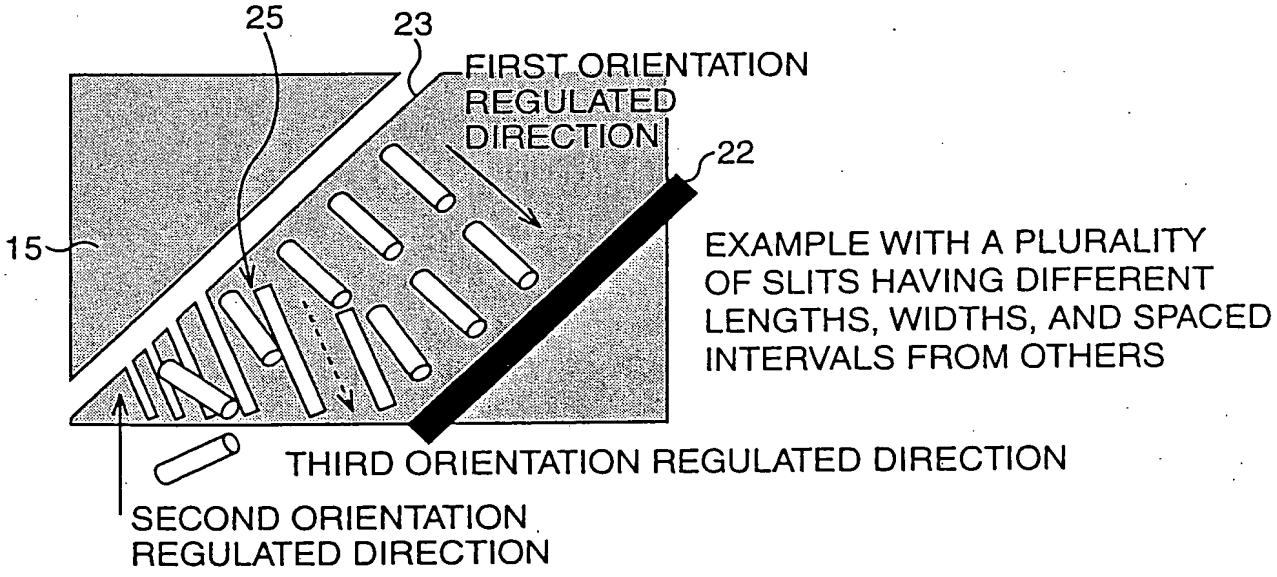

25
23
FIRST ORIENTATION REGULATED DIRECTION
22
15
EXAMPLE WITH A PLURALITY OF SLITS HAVING DIFFERENT LENGTHS, WIDTHS, AND SPACED INTERVALS FROM OTHERS
THIRD ORIENTATION REGULATED DIRECTION
SECOND ORIENTATION REGULATED DIRECTION

FIG. 10

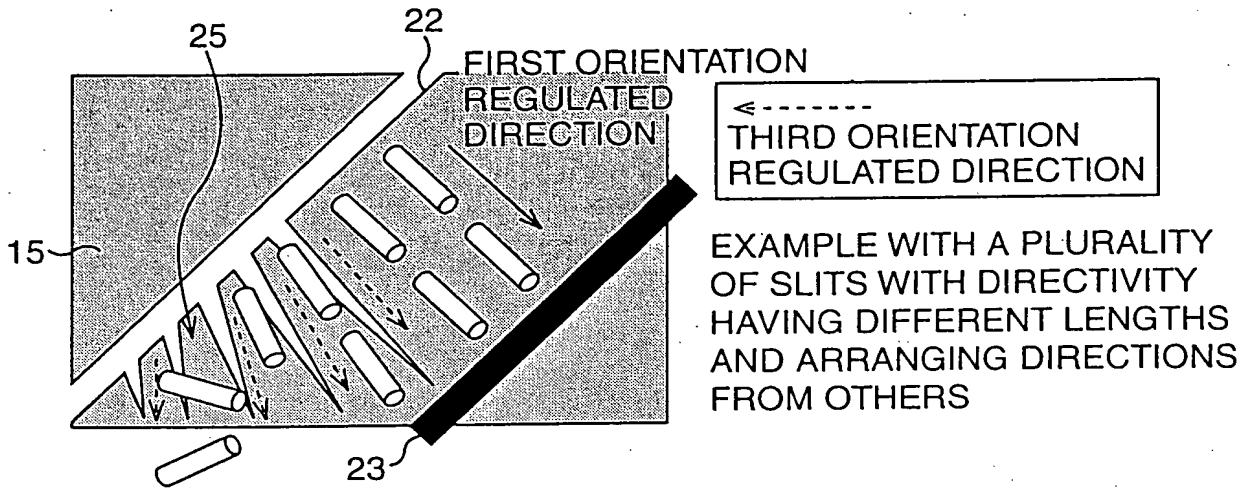

25
22
FIRST ORIENTATION REGULATED DIRECTION
THIRD ORIENTATION REGULATED DIRECTION
15
EXAMPLE WITH A PLURALITY OF SLITS WITH DIRECTIVITY HAVING DIFFERENT LENGTHS AND ARRANGING DIRECTIONS FROM OTHERS
23

FIG. 11

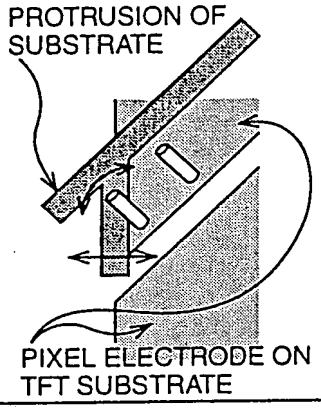
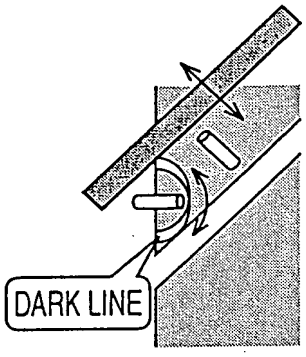
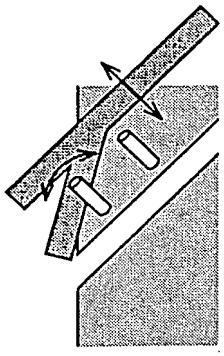
	①WITH AN AUXILIARY BANK	②WITHOUT AN AUXILIARY BANK	③CHANGE THE DIRECTION OF AN AUXILIARY BANK
STRUCTURE			
TRANSMITTANCE	1	0.9	0.95
MISALIGNMENT MARGIN	×	○	△
FEATURES	·LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES GREATLY DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (A LARGE DEGREE OF TRANSMITTANCE CHANGE) ·NO DARK LINE ON A PIXEL EDGE (A LARGE DEGREE OF IMPROVEMENT IN TRANSMITTANCE)	·LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (TO A SMALL DEGREE) ·OCCURRENCE OF ONE DARK LINE ON A PIXEL EDGE (A LARGE DEGREE OF DECREASE IN TRANSMITTANCE)	·LIQUED CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING ·NO DARK LINE ON A PIXEL EDGE

FIG. 12

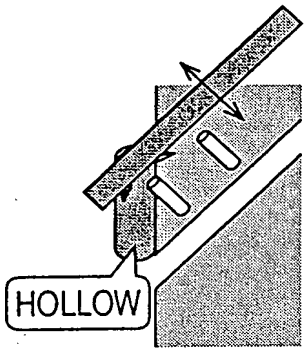
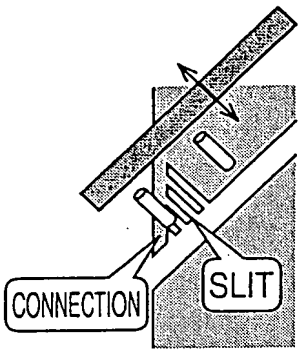
	④HOLLOW IN A PIXEL EDGE	⑤FINE SLITS +CONNECTION AT THE END
STRUCTURE		
TRANSMITTANCE	0.92	0.95
MISALIGNMENT MARGIN	○	◎
FEATURES	·LIQUID CRYSTAL ORIENTATION OF A PIXEL EDGE CHANGES DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (WITH A MARGIN) ·NO DARK LINE ON A PIXEL EDGE	·LIQUID CRYSTAL ORIENTATION DOES NOT CHANGE EASILY DUE TO DEVIATION AMONG EACH SHOT AND IN PASTING (WITH THE LARGEST MARGIN) ·NO DARK LINE AT A PIXEL EDGE (TRANSMITTANCE UNDER IMPROVEMENT) ·TRANSMITTANCE IS IMPROVED GREATLY AT A DRIVING VOLTAGE OF 6V OR HIGHER (EQUAL TO ①)

FIG. 13

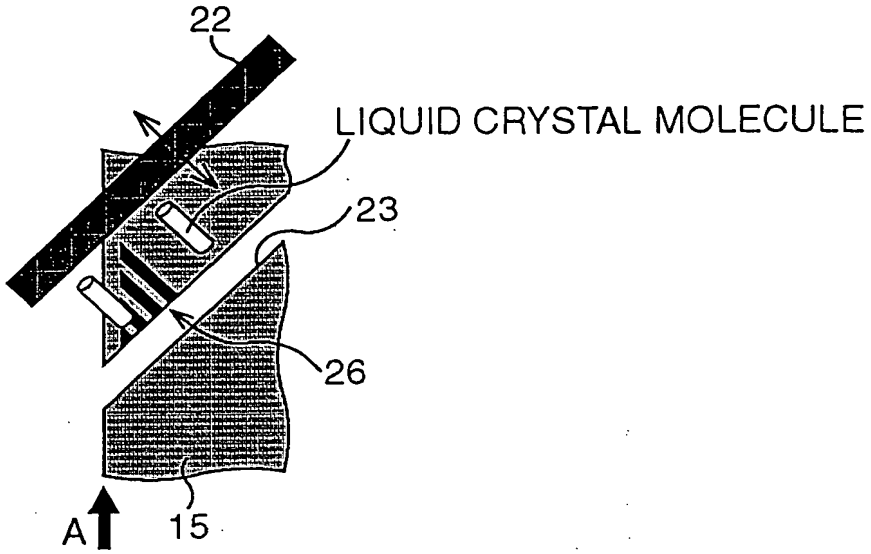


FIG. 14A

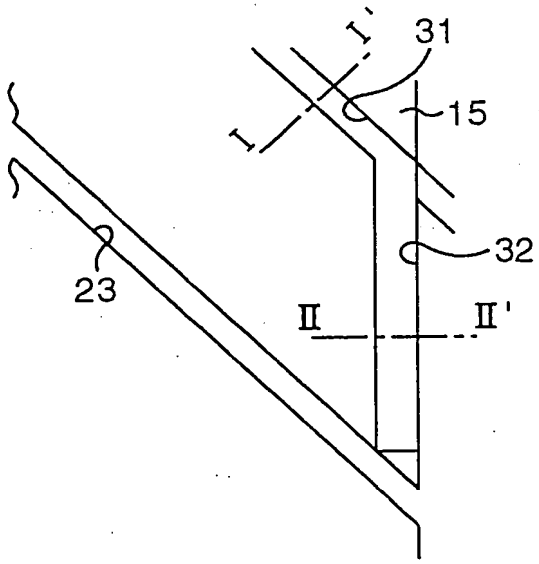


FIG. 14B

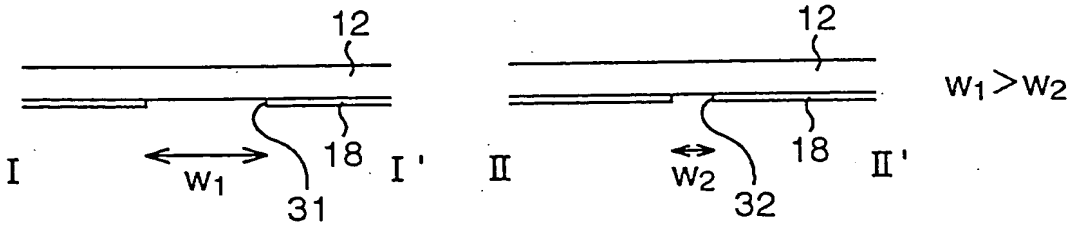


FIG. 15A

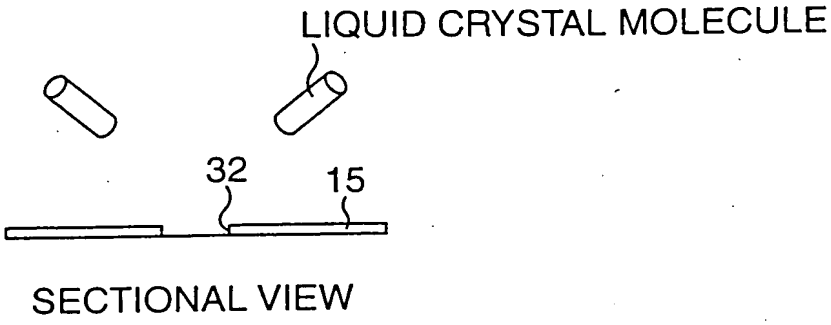


FIG. 15B

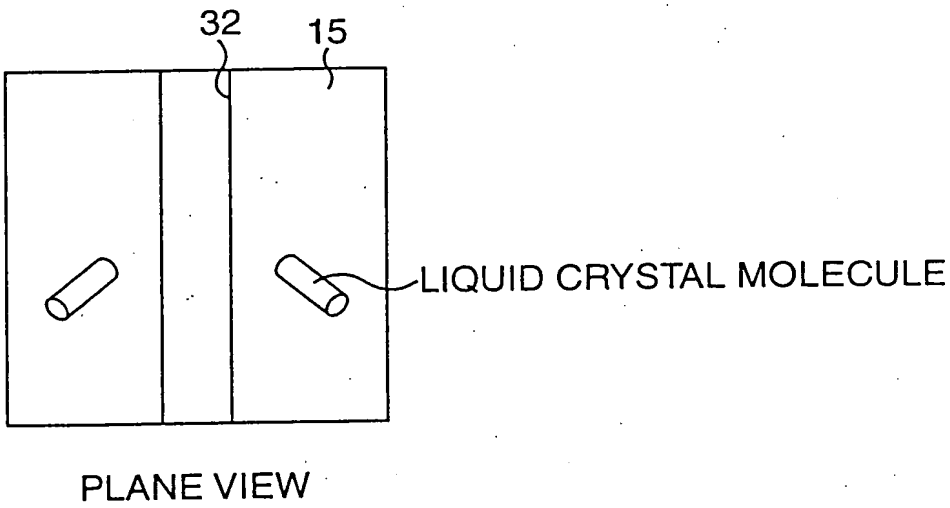


FIG. 16A

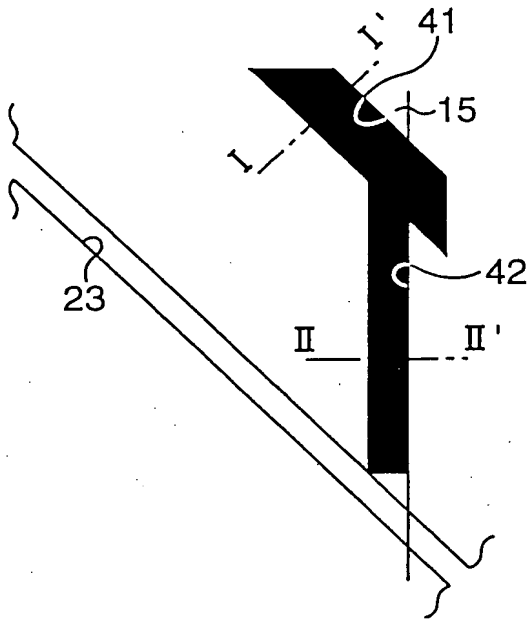


FIG. 16B

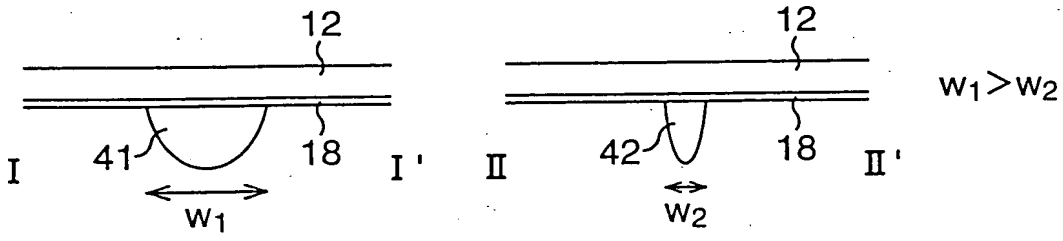


FIG. 17A

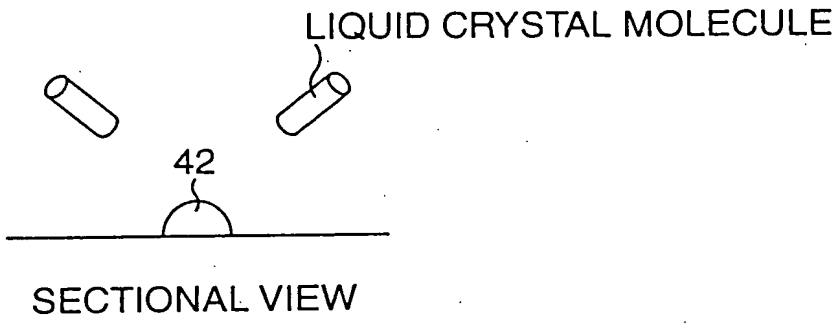


FIG. 17B

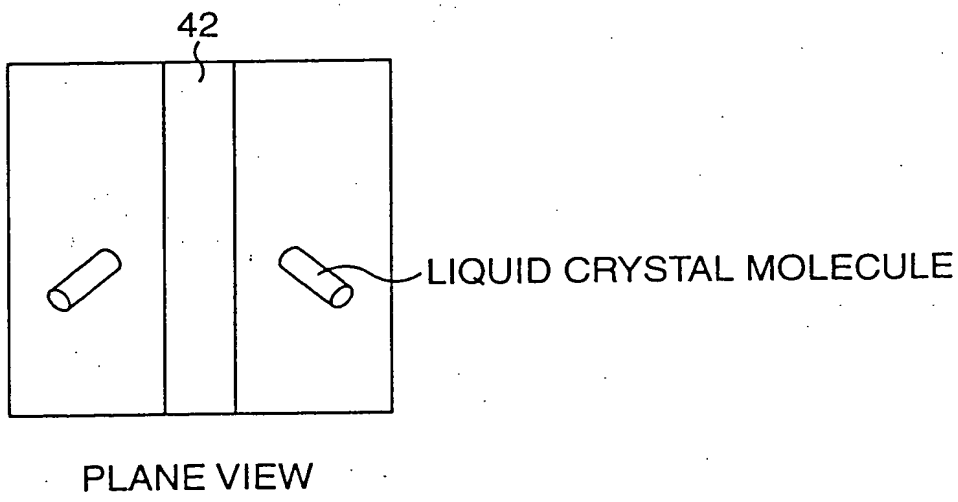
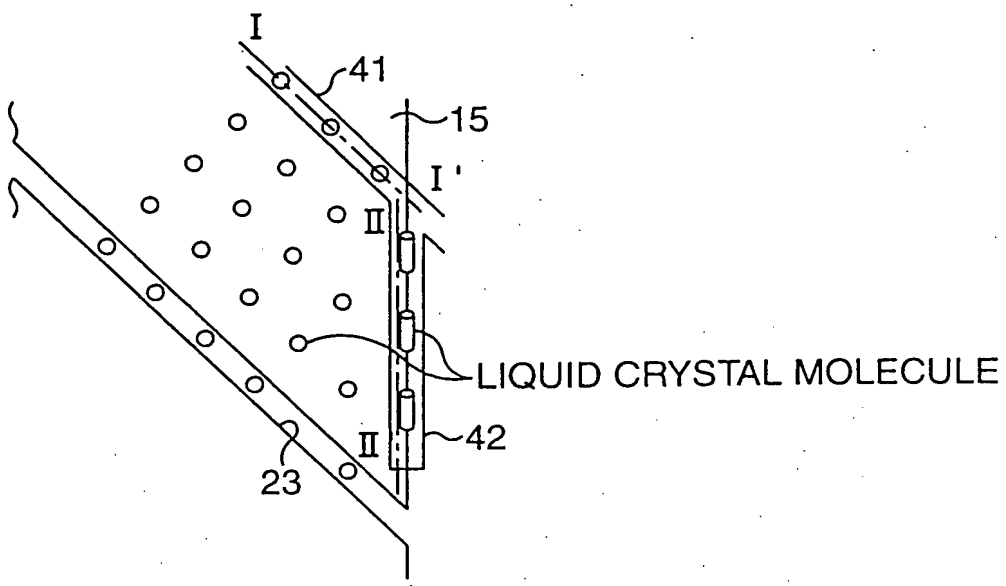
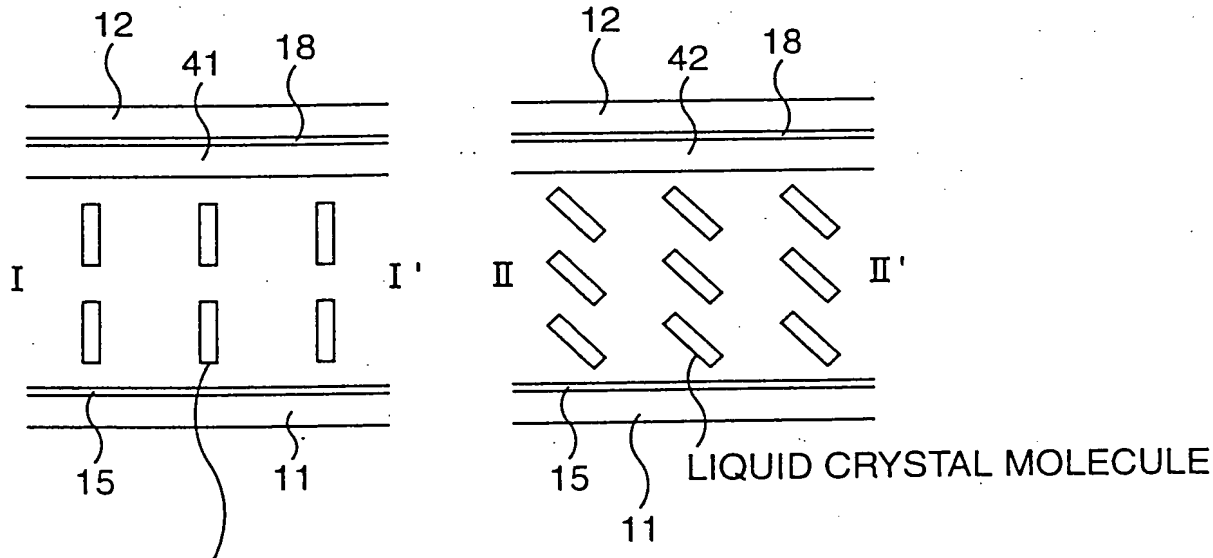


FIG. 18A



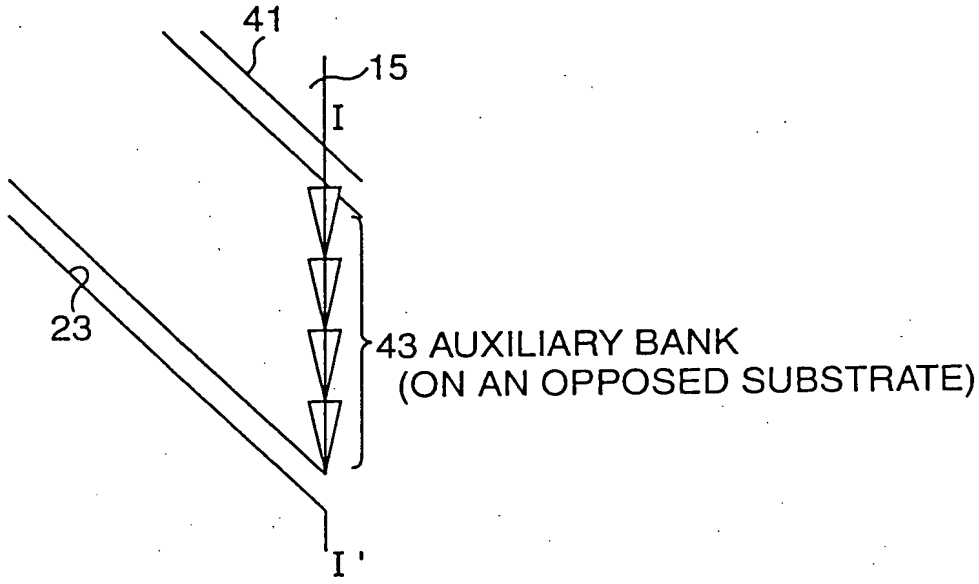
PLANE VIEW

FIG. 18B



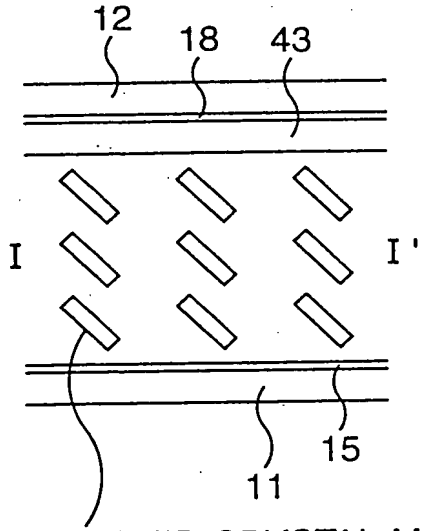
SECTIONAL VIEW

FIG. 19A



PLANE VIEW

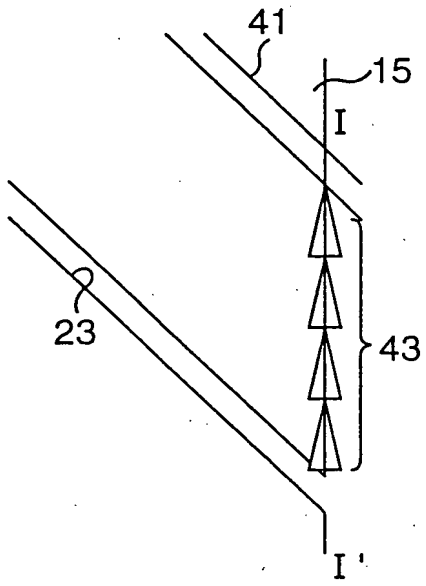
FIG. 19B



LIQUID CRYSTAL MOLECULE

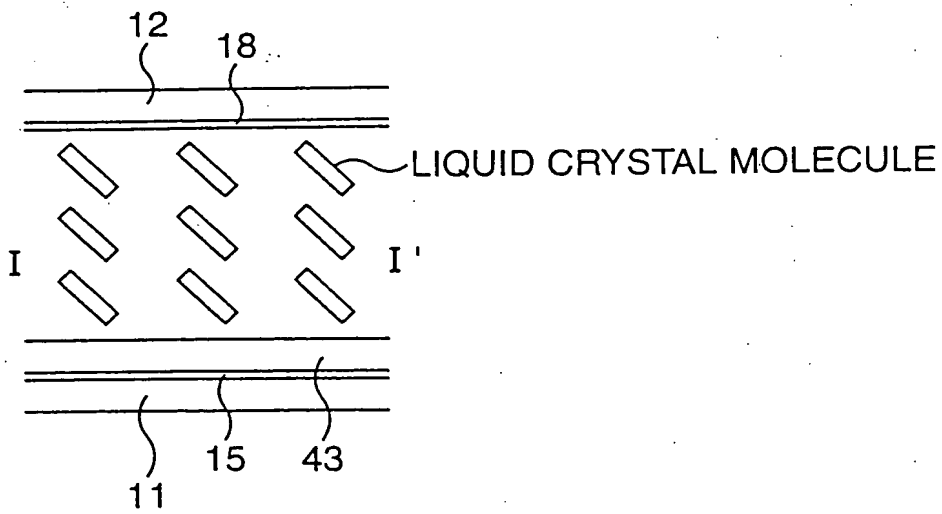
SECTIONAL VIEW

FIG. 20A



PLANE VIEW

FIG. 20B



SECTIONAL VIEW

FIG. 21A

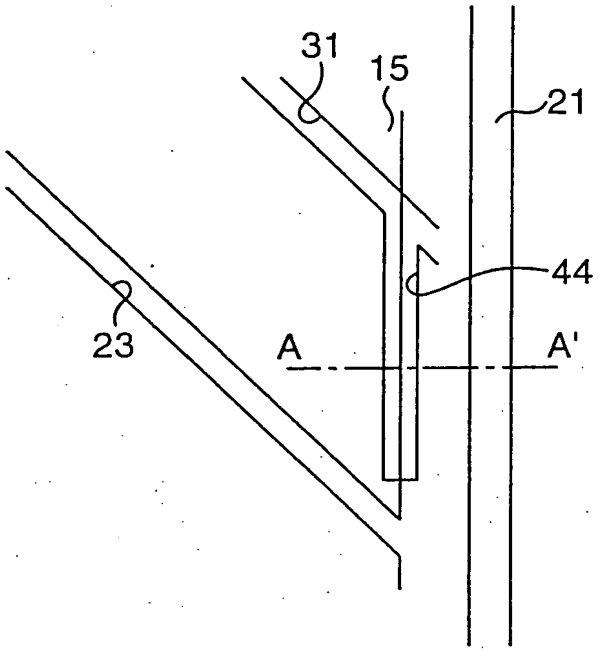


FIG. 21B

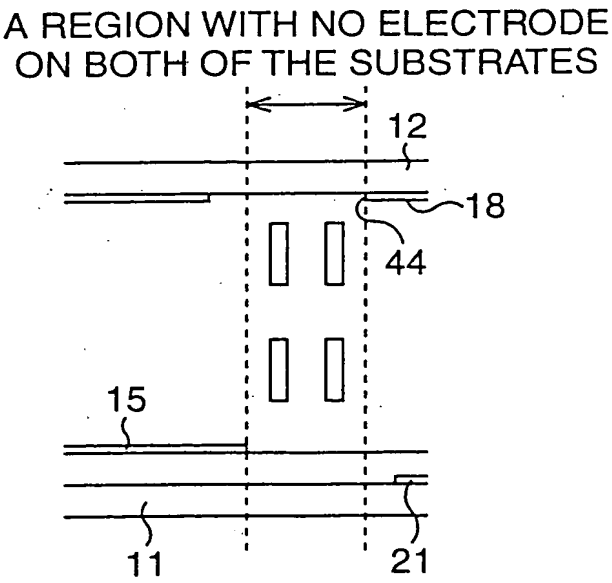
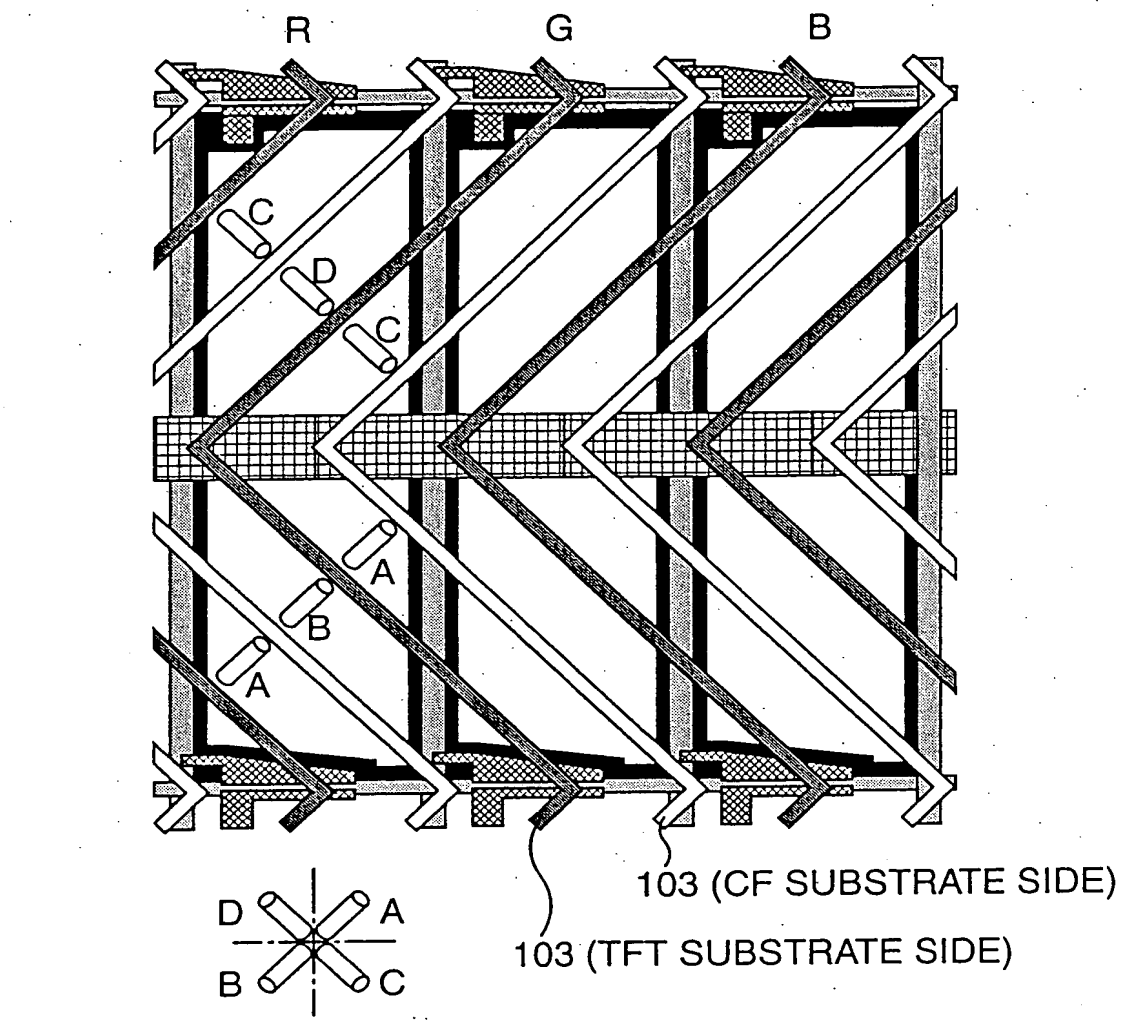
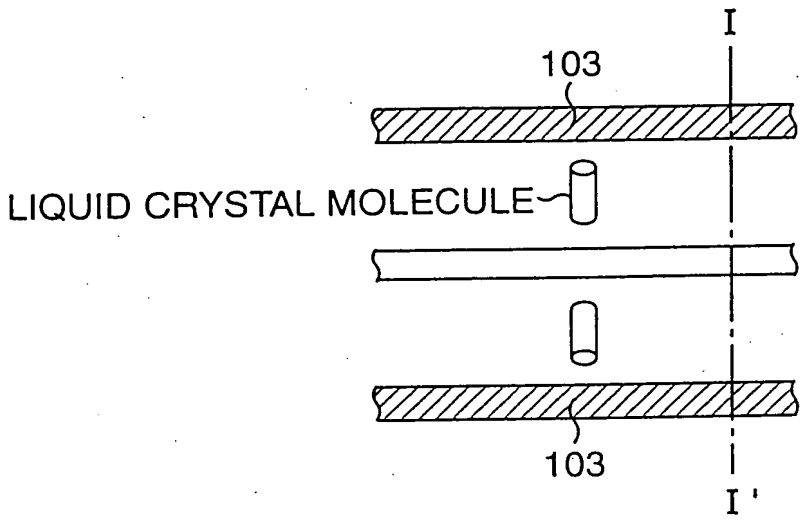


FIG. 22



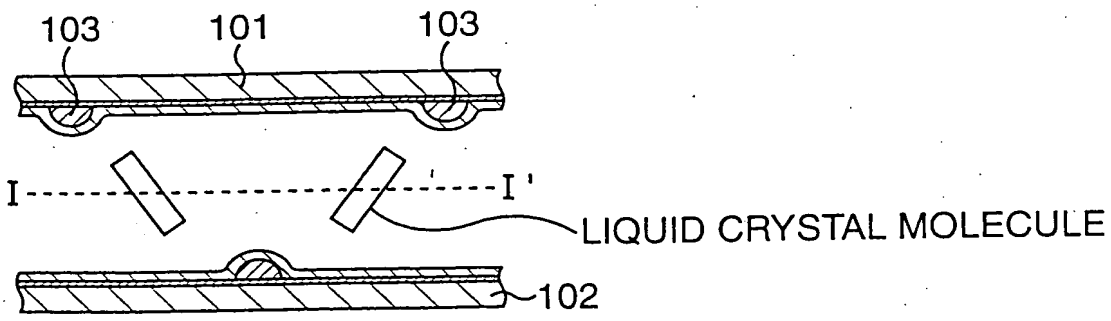
PIXEL STRUCTURE OF AN MVA LIQUID CRYSTAL DISPLAY (ONE PIXEL)

FIG. 23A



PLANE VIEW

FIG. 23B



SECTIONAL VIEW

FIG. 24A

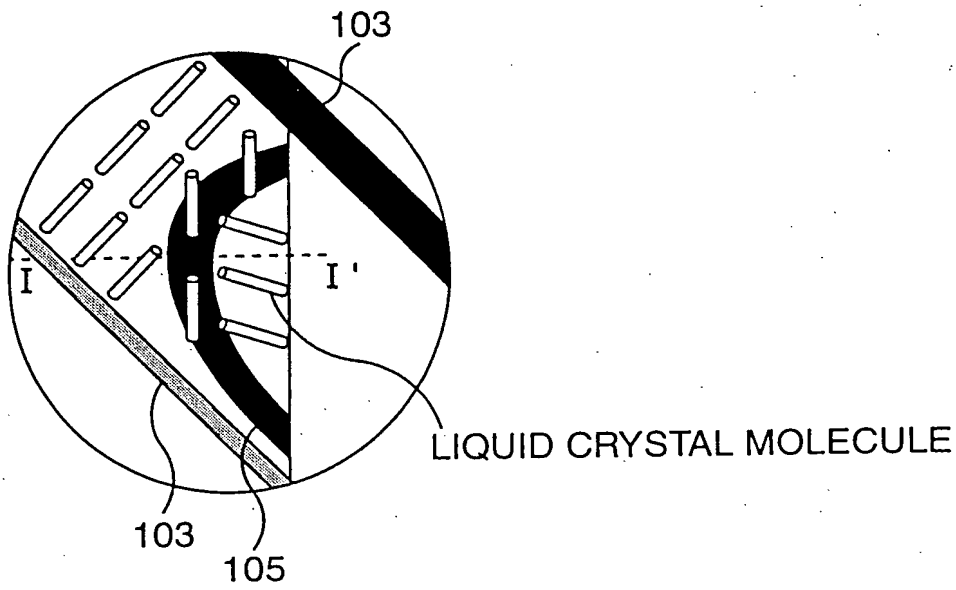


FIG. 24B

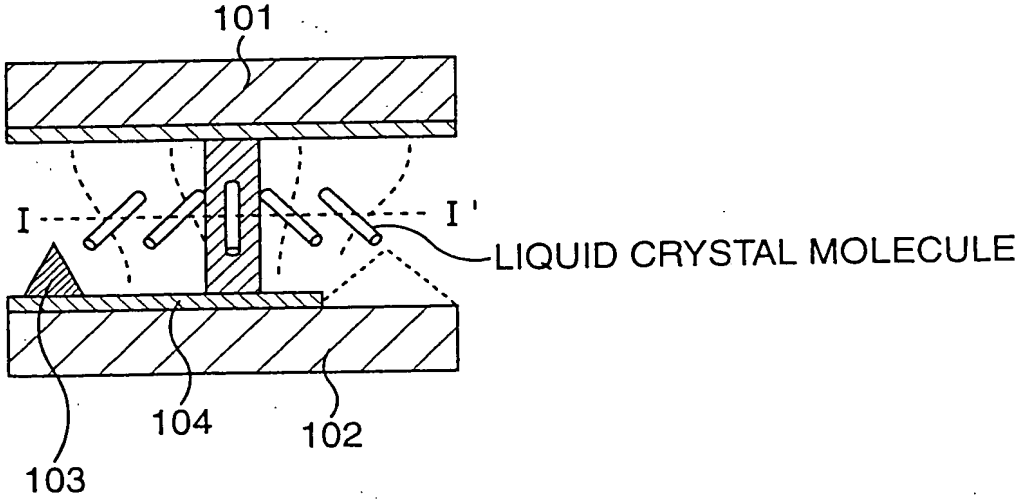
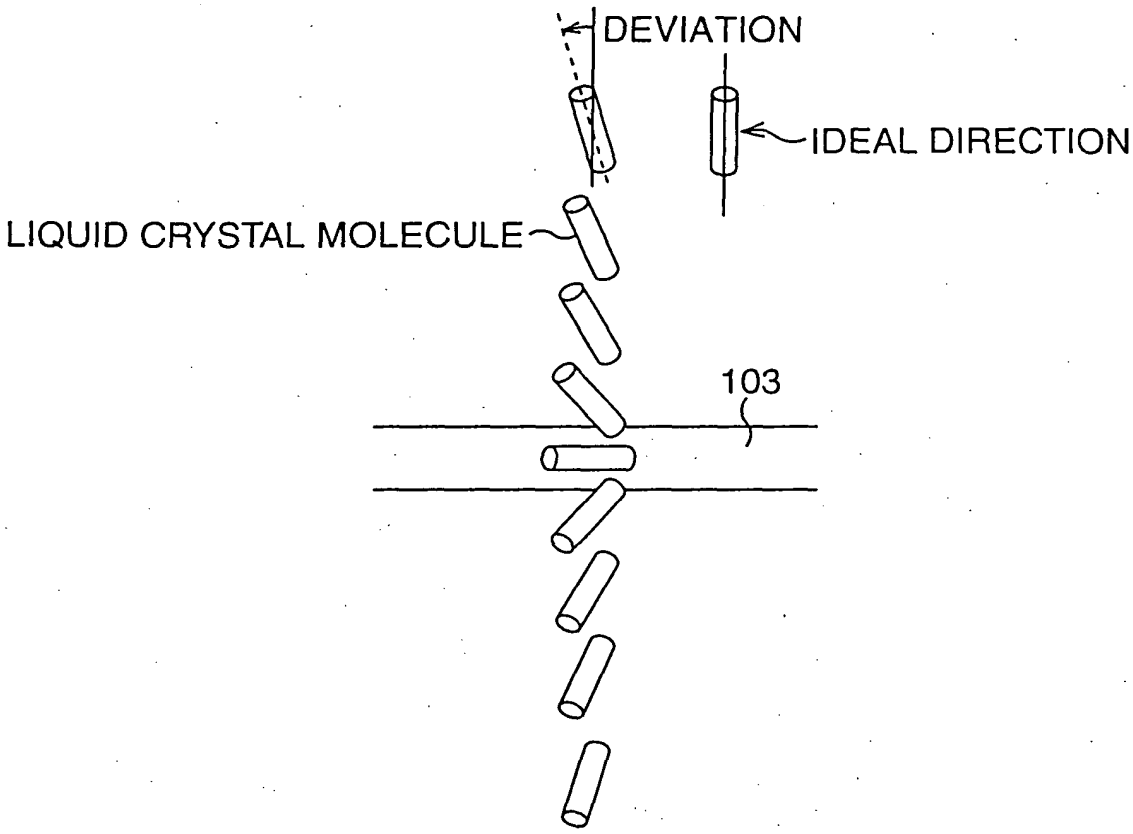
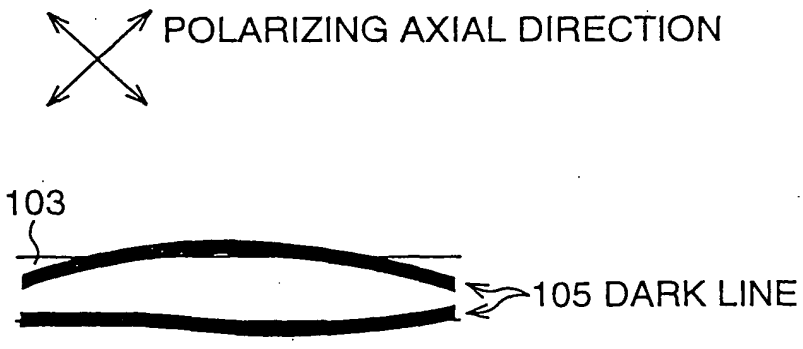


FIG. 25A



ALIGNMENT DIRECTION OF THE LIQUID CRYSTAL MOLECULE

FIG. 25B



OPTICAL APPEARANCE

FIG. 26A

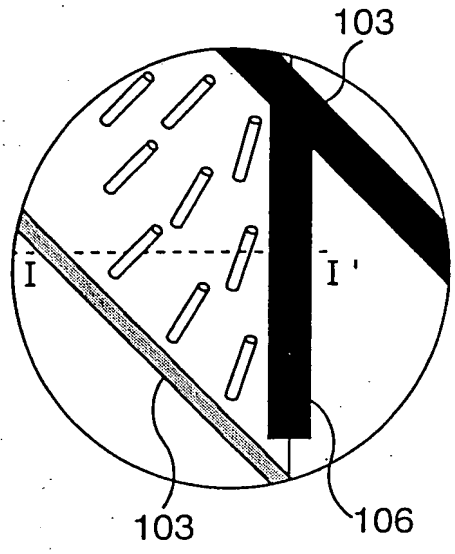


FIG. 26B

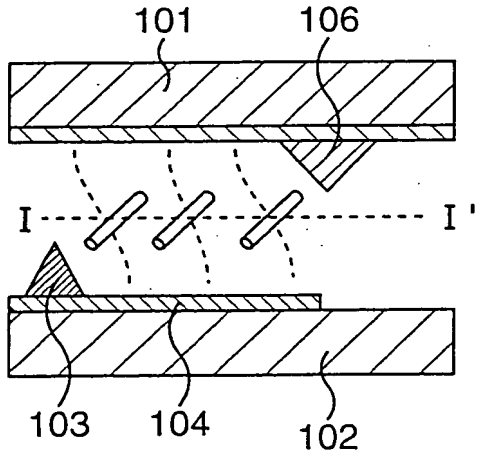


FIG. 27A

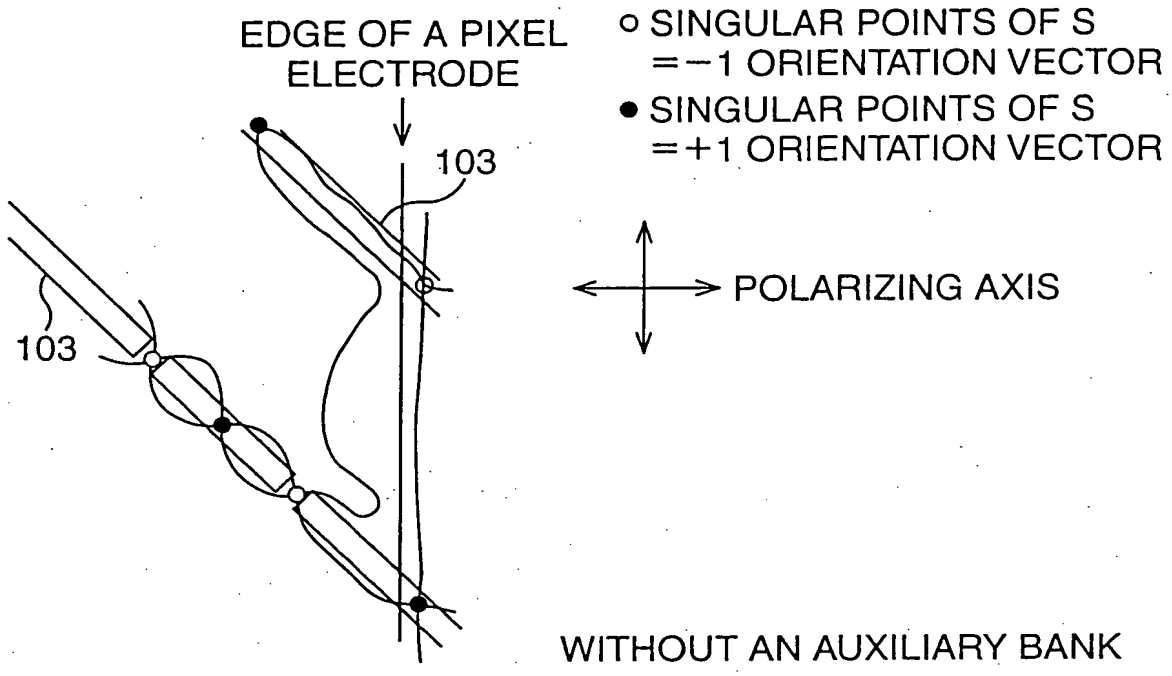


FIG. 27B

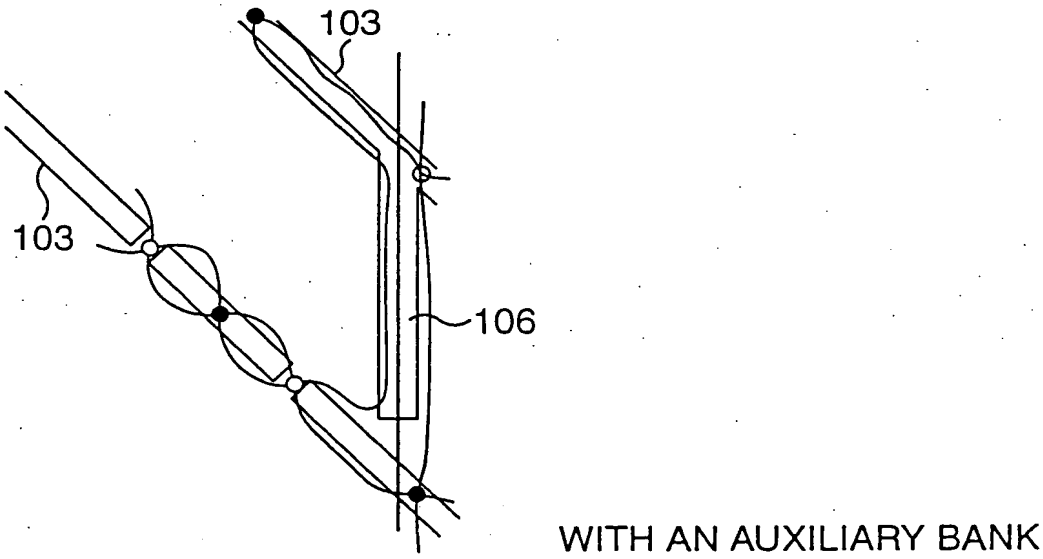


FIG. 28

STRENGTH OF SINGULAR POINTS OF ORIENTATION VECTOR
●S=+1
OS=−1

OBSERVED WITH A TFT SUBSTRATE ON A LOWER SIDE AND A CF SUBSTRATE ON AN UPPER SIDE

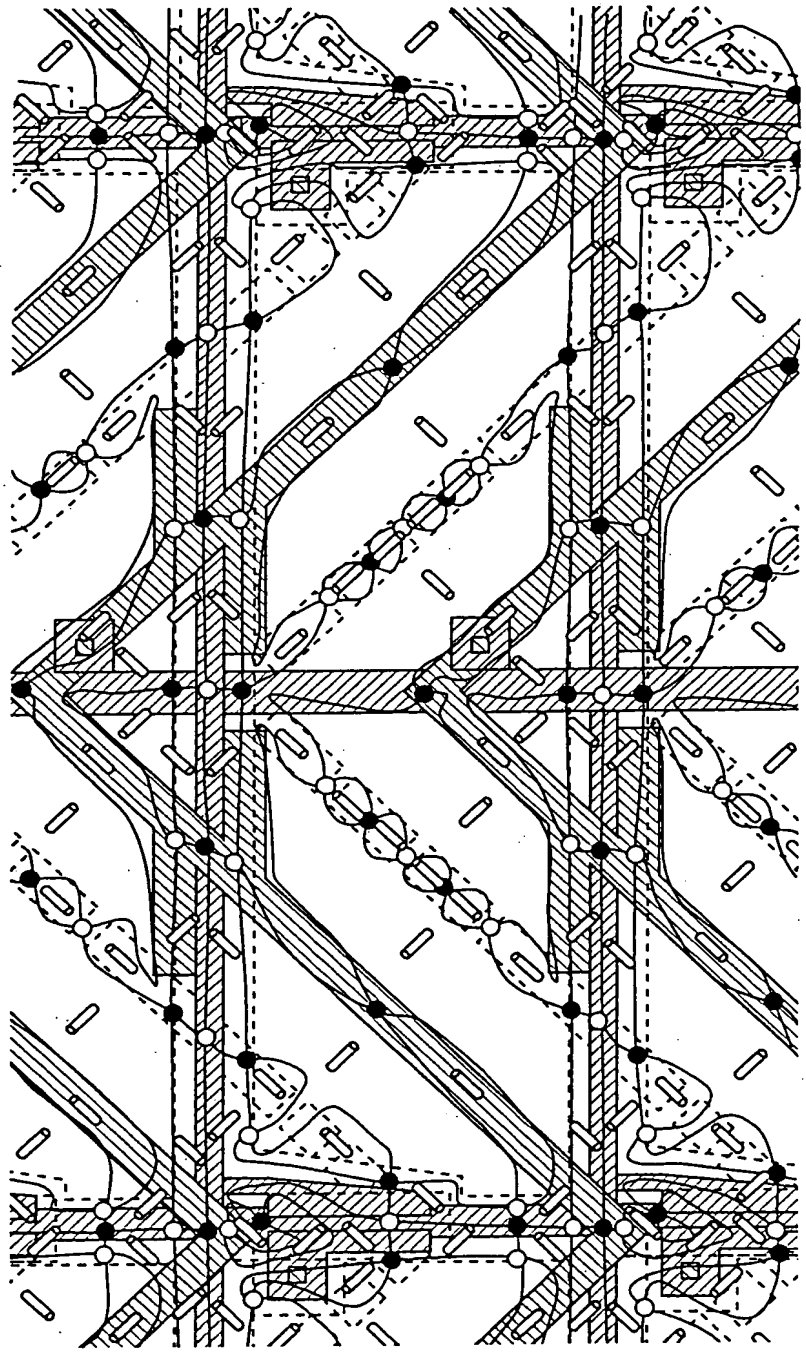
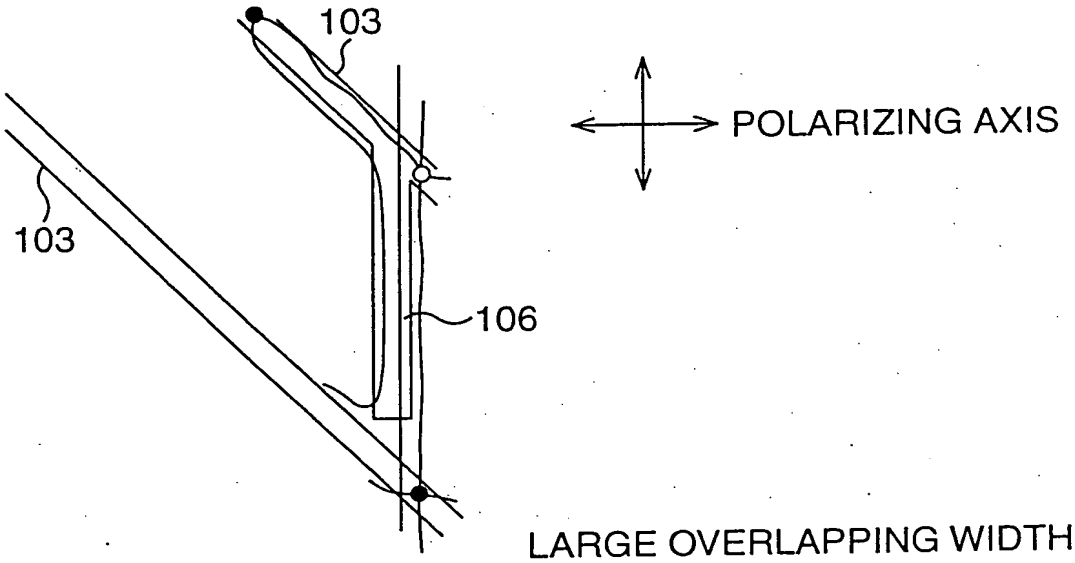
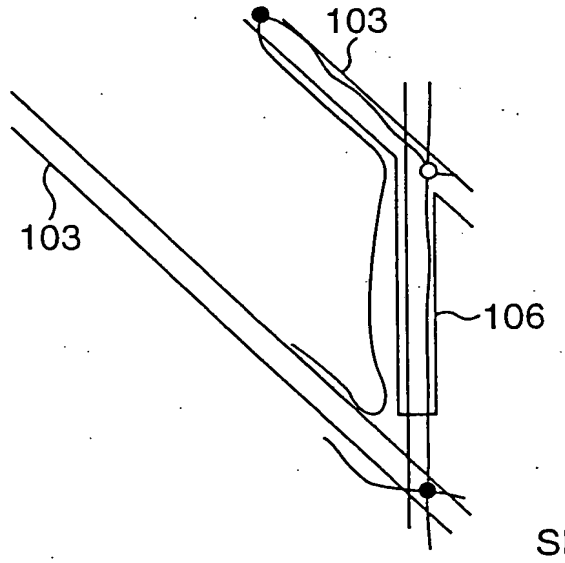


FIG. 29A



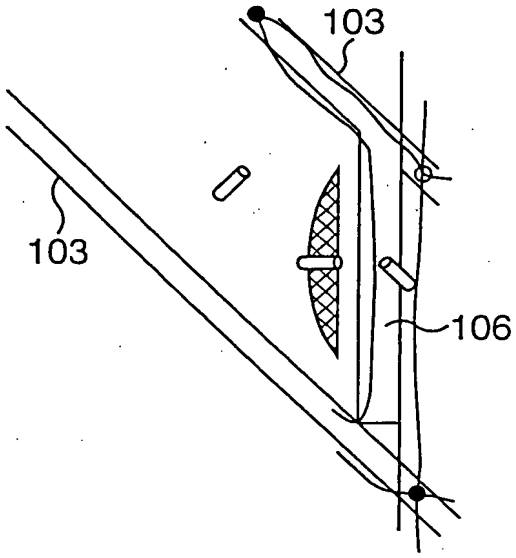
LARGE OVERLAPPING WIDTH OF AN AUXILIARY PROTRUSION AND A PIXEL EDGE

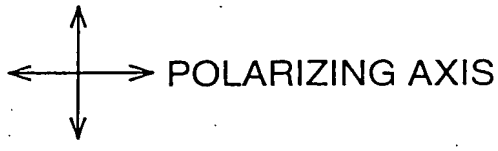
FIG. 29B



SMALL OVERLAPPING WIDTH OF AN AUXILIARY PROTRUSION AND A PIXEL EDGE

FIG. 30





LARGE OVERLAPPING WIDTH OF AN AUXILIARY BANK AND A PIXEL (LARGER THAN THAT OF UPPER CASES SHOWN IN FIG.7)